

## **REMARKS**

The present Amendment amends claims 1, 13, 14 and 16 and leaves claims 2-12, 14, 15, 17 and 18 unchanged. Therefore, the present application has pending claims 1-18.

Applicants' Attorney, the undersigned, respectfully requests the Examiner to contact Applicants' Attorney by telephone prior to examination to discuss the outstanding issues of the present application.

Claims 1-9 and 11-18 stand rejected under 35 USC §103(a) as being unpatentable over Nahum (WIPO Patent Publication No. WO 01/80013) in view of Czajkowski (U.S. Patent No. 6,453,403); and claim 10 stands rejected under 35 USC §103(a) as being unpatentable over Nahum in view of Czajkowski and further in view of Barnett (U.S. Patent No. 6,971,016). These rejections are traversed for the following reasons. Applicants submit that the features of the present invention as now recited in the claims are not taught or suggested by Nahum, Czajkowski or Barnett whether taken individually or in combination with each other or any of the other references of record. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

Amendments were made to each of independent claims 1, 13 and 16 so as to more clearly recite that the present invention is directed to data transfer being implemented in a system having a plurality of separate memory devices such as that illustrated, for example, in Fig. 8 of the present application. According to the present invention a management device 160 is provided for managing the separate memory devices and the relay device in a manner such that virtual memory areas VLU 10, VLU 11 can be set for the

plurality of computers. The management device holds first information on the contents of the set virtual memory areas for each virtual memory area VLU 10 and VLU 11.

As now more clearly recited in the claims the relay device holds second information for each virtual memory area such that the second information, having been created based on the first information, indicates whether data stored in the corresponding virtual memory area can be transferred from a separate memory device containing the virtual memory area to another memory device. In Fig. 8, this teaching is illustrated, for example, as the "TRANSFER PROPRIETY: POSSIBLE" indication.

In the present invention each of the virtual memory areas corresponds to memory areas contained in one memory device or corresponds to a memory area formed by combining memory areas contained in plural different memory devices.

Thus, according to the present invention the relay device selects a virtual memory area based on the second information, and determines whether the selected virtual memory area is a virtual memory area formed by a memory area that combines memory areas contained in plural different memory devices. As per the present invention if the selected virtual memory area is formed by combining memory areas in plural different memory devices and if an unused memory area exist in the memory device containing the selected virtual memory area, the relay device performs data transfer of data from a memory area of the one of the plural different memory devices other than the memory device containing the selected virtual memory area to the

unused memory area of the memory device containing the selected virtual memory area.

The claims were amended so as to more clearly recite the above described features of the present invention as illustrated in Fig. 10 of the present application, particularly with regards to steps 1001, 1008, 1003 and 1005. Such features are clearly not taught or suggested by any of the references of record whether taken individually or in combination with each other. These features of the present invention now more clearly recited in the claims are not taught or suggested by Nahum, Czajkowski or Barnett whether taken individually or in combination with each other as suggested by the Examiner.

Numerous arguments were presented distinguishing the features of the present invention as recited in the claims from Nahum and Barnett in the Remarks of the February 3, 2006 Amendment, said Remarks being incorporated herein by reference. It was shown in said Remarks, and the Examiner acknowledges, that Nahum fails to teach or suggest numerous features of the present invention as recited in the claims.

Since the claims were amended by the present Amendment to more clearly describe the features of the present invention, it is submitted that additional features are now recited in the claims distinguishing the present invention from that taught by Nahum and Barnett.

At no point in Nahum or Barnett is there any teaching or suggestion of the above described features of the present invention, wherein the memory devices are each separate from each other, that the second information corresponds to the virtual memory areas each indicating whether data stored

in the corresponding virtual memory area can be transferred from its current memory device to another memory device, and that the relay device performs an operation to determine whether the selected virtual memory area is a virtual memory area formed by a memory area that combines memory areas contained in the plural different memory devices as in the present invention.

Nahum teaches, for example, the use of virtualization software so as to adapt the storage area network in real-time in response to configuration changes of the devices. Barnett is merely relied upon for an alleged teaching of a memory area in a relay device. However, at no point is there any teaching or suggestion in Nahum or Barnett of the above described features of the present invention particularly regarding the operations performed by the relay device. As described above and as recited in the claims, the relay device performs a determination as to whether a selected virtual memory area is a virtual memory area formed by a memory area that combines memory areas contained in plural different devices and if so and if unused area is contained in single memory device in which the selected virtual memory area is contained transfers the data from the other memory devices to the single memory device. Such features are clearly not taught or suggested by Nahum or Barnett.

Therefore, Nahum and Barnett fail to teach or suggest plural memory devices each being separate from the others wherein a management device sets virtual memory areas of the memory devices for the plural computers and holds first information on contents of the setting for each virtual memory area as recited in the claims.

Further, Nahum and Barnett fail to teach or suggest that the relay device holds second information for each virtual memory area wherein the second information for each virtual memory area is created based upon the first information for the virtual memory area and wherein each second information of a corresponding virtual memory area indicates whether data stored in the communication virtual memory area can be transferred from a memory device containing the virtual memory area to another memory device as recited in the claims.

Still further, Nahum and Barnett fail to teach or suggest that each of the virtual memory areas corresponds to memory areas contained in one memory device or corresponds to a memory area formed by combining memory areas contained in plural different memory devices as recited in the claims.

Even further yet, Nahum and Barnett fail to teach or suggest that the relay device selects a virtual memory area based on the second information, determines whether the selected virtual memory area is a virtual memory area formed by a memory area that combines a memory areas contained in plural different memory devices, and if the selected virtual memory area is formed by combining memory areas in plural different memory devices and if an unused area exist in the memory device containing the selected virtual memory area, performs data transfer of data from a memory area of one of the different memory devices other than the memory device containing the selected virtual memory area to the unused area of the memory device containing the selected virtual memory area as recited in the claims.

Therefore, both Nahum and Barnett suffer from the same deficiencies relative to the features of the present invention as recited in the claims and as

such when combined does not render obvious the features of the present invention as now more clearly recited in the claims.

The above described deficiencies of Nahum and Barnett are not supplied by Czajkowski. Czajkowski is merely relied upon by the Examiner for an alleged teaching of a disclosure of an automatic memory management system that utilizes memory compaction and de-fragmentation.

However, at no point is there any teaching or suggestion in Czajkowski that the memory compaction and de-fragmentation is performed as a result of a particular operation being performed by the relay device as in the present invention. Specifically, there is no teaching or suggestion in Czajkowski of the above described features of the present invention wherein the relay device performs an operation of determining whether a selected virtual memory area is a virtual memory area formed by a memory area that combines memory areas contained in plural different memory devices. One of the environmental realities of the present invention is intended to operate is when the memory devices are separate from each other and as such operate in a manner independent of each other. In the present invention particular processes are performed to detect which site exists where a virtual memory area is formed by combining at least two different memory devices. No such corresponding operation is performed by Czajkowski.

Czajkowski is simply directed to the compacting of blocks of memory in a single contiguous address space so that there are no unused blocks. Thus, in Czajkowski there is no concern as to whether the memory areas that make up a virtual memory area are contained in two separate memory devices as in

the present invention. Czajkowski's only concern is not to have unused areas between used areas in a single address space.

In Czajkowski since there is no concern as to whether an indication is provided that the data contained in a particular memory area can be transferred or not, no such indication is provided nor is alternative operation performed based upon such an indication as in the present invention.

Accordingly, there is no teaching or suggestion in Czajkowski of determining whether a virtual memory area is made up of memory spaces which reside on two different memory devices as in the present invention. This is of no concern to Czajkowski. Further, there is no teaching or suggestion in Czajkowski of providing an indication whether data of a memory device can be transferred or not as in the present invention.

Thus, Czajkowski fails to teach or suggest plural memory devices each being separate from the others and a management device which sets virtual memory areas of the memory devices for the plural computers and holds first information on contents of the setting for each virtual memory area as in the present invention.

Further, Czajkowski fails to teach or suggest that the relay device holds second information for each virtual memory area wherein the second information for each virtual memory area is created based on the first information for the virtual memory area and wherein each second information of a corresponding virtual memory area indicates whether data stored in the corresponding virtual memory area can be transferred from a memory device containing the virtual memory area to another memory device as recited in the claims.

Still further, Czajkowski fails to teach or suggest that each of the virtual memory areas corresponds to memory areas contained in one memory device or corresponds to a memory area formed by combining memory areas contained in plural different memory device as recited in the claims.

Still further yet, Czajkowski fails to teach or suggest that the memory device selects a virtual memory area based on the second information, determines whether the selected virtual memory area is a virtual memory area formed by a memory area that combines memory areas contained in plural different memory devices and, if the selected virtual memory area is formed by combining memory areas in plural different memory devices and if an unused area exist in the memory device containing the selected virtual memory, performs data transfer of data from a memory area of one of the different memory devices other than the memory device containing the selected virtual memory area to the unused memory area of the memory device containing the selected virtual memory area as recited in the claims.

Therefore, as is quite clear from the above, Czajkowski does not supply any of the deficiencies noted above with respect to Nahum and Barnett relative to the features of the present invention as now more clearly recited in the claims. Accordingly, combining the teachings of Nahum with one or more of Czajkowski and Barnett still fails to teach or suggest the features of the present invention as now more clearly recited in the claims. As such reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 1-9 and 11-18 as being unpatentable over Nahum in view of Czajkowski and the 35 USC §103(a) rejection of claim 10 as being unpatentable over Nahum in view of Czajkowski and Barnett is respectfully requested.



The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1-18.

In view of the foregoing amendments and remarks, applicants submit that claims 1-18 are in condition for allowance. Accordingly, early allowance of claims 1-18 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (501.43144X00).

Respectfully submitted,

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